

APPENDIX F

SBx7-7 Compliance

MARCH 9, 2011

PUBLIC NOTICE

Re: Notice of Revision and Review of the City of Ceres 2010 Urban Water Management Plan

NOTICE IS HEREBY GIVEN that a public hearing will be held by the City of Ceres to receive public comment at the regularly City Council meeting on March 28, 2011, at the Ceres Community Center, 2701 Fourth St., Ceres, California, for the purpose of notifying and informing the public on the City's implementation plan for complying with the "Water Conservation Act of 2009," Senate Bill x7-7. The implementation plan is part of the City's Urban Water Management Plan (UWMP). The legislation requires that each urban retail water supplier shall develop urban water use targets, establishing conservation reductions to be achieved by 2020, and an interim water use target, for water conservation reductions to be achieved by 2015, by July 1, 2011. The legislation sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020. The state shall make incremental progress towards this goal by reducing per capita water use by at least 10% by December 31, 2015.

The purpose of the hearing is to allow community input regarding the implementation plan, consider the economic impacts of the City's implementation plan, and to adopt the method to be used to establish the City's interim (2015) and 2020 urban water use targets.

All interested persons are invited to attend the public hearing at the above time and place to learn about the preparation of the Urban Water Management Plan (UWMP), and provide input on the City's implementation plan for complying with the "Water Conservation Act of 2009." This meeting is also an opportunity for residents to learn about the State's requirements and methodologies to meet water use targets as outlined in Senate Bill SBx7-7. Additional information on the development of the UWMP can be found by visiting the Department of Water Resources' website at: <http://www.water.ca.gov/wateruseefficiency/sb7>.

If you have any questions, please call Jason Chapman in the Engineering Department at (209) 538-5791 any weekday from 8:00 a.m. to 5:00 p.m.

Sincerely,

Jason K. Chapman, P.E.
Associate Engineer

Publish: 3/09/11

CC#02-24



COUNCIL AGENDA REPORT

COUNCIL MEETING Date: 3-28-11

CITY COUNCIL

Chris Vierra – Mayor
Ken Lane

Bret Durossette
Guillermo Ochoa

Report Preparation Date: March 19, 2011

TO: Mayor and City Council

FROM: Michael F. Brinton, Acting City Engineer

SUBJECT: Public Hearing to Adopt Per-Capita Water Use targets as part of the 2010 Urban Water Management Plan

CONTACT: Michael F. Brinton, Michael.brinton@ci.ceres.ca.us, 538-5630

RECOMMENDED COUNCIL ACTION:

Conduct a public hearing to consider approving a Methodology Consumption Calculation that determines per-capita water use targets and the associated per-capita water uses, as required by the State Water Code, in the 2010 Urban Water Management Plan (2010 UWMP) and adopt Target Method Number 1.

BACKGROUND:

Urban Water Management Plans (URMP) are required to be updated and submitted to the State Department of Water Resources (DWR) every five years under the Urban Water Management Planning Act (UWMPA). In June 2010, the City entered into an agreement with West Yost Associates to develop the 2010 Urban Water Management Plan (2010 UWMP). An UWMP is necessary for water agencies (City/MID) to be eligible for State Water Management Grants or Loans.

One of the requirements of the 2010 UWMP is that the City must implement specific Demand Management Measures (DDM's) that will help achieve per-capita water use targets that reflect a 20% reduction in water use by the year 2020, mandated by the State's Water Conservation Act (Senate Bill X7-7).

In October 2010, the DWR released the Final Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use document describing the methods for determining these targets and three of the four methods allowed for determining the 20% reduction water use target to the year 2020, as well as the Interim 2015 Target.

West Yost developed a Technical Memorandum (March 2011) which established the base water usage for Ceres water system and compared water use targets for three of the four methodologies as well as targets on the fourth methodology based on draft information available to date. Based on the analysis, it is recommended that Ceres adopt Methodology Target Number 1 which provides for the required amount of reduction in per-capita water use to meet the Final 2020 and Interim 2015 per-capita water use targets. Base per-capita water usage is calculated from a 10-year running average per DWR requirements.

Ceres base per-capita water use has been calculated at 243 gallons per-capita-per-day (gpcd). Methodology Target Number 1 results in a year 2020 water usage target of 194 gpcd (reduction of 20%) and an Interim 2015 water usage target of 219 gpcd (10% reduction). As shown in Table 1 below, Target Methodology Number 1 allows for the highest 2020 Target goal for gpcd of the available methodologies released by DWR.

Table 1: Calculated Water Use Targets for DWR Methodologies

Target Method Number	Target Method Description	Base Daily Per Capita Water Use	Interim (2015) Target	Interim (2020) Target
1	Uses historical gross water use and service area population to determine a base daily per capita water use. The Urban Water Use Target is 80 percent of this value.	243 gpcd	219 gpcd	194 gpcd
2	Uses performance standards for indoor and outdoor water use, landscape irrigation use, and commercial, institutional, and industrial (CII) uses.	243 gpcd	(a)	(a)
3	Uses 95 percent of the applicable state hydrologic region target as defined in the State's draft 20x2020 Water Conservation Plan issued by DWR in April 2009.	243 gpcd	204 gpcd	165 gpcd
4 (b)	Not yet defined. To be evaluated once it is defined by DWR.	243 gpcd	___ gpcd	___ gpcd

- (a) Rigorous application of this method requires a data-intensive analysis using GIS, coupled with site visits to estimate appropriate irrigation areas. Such an analysis has not been performed for this evaluation due to insufficient data. In addition, the City does not currently have sufficient data to calculate annual CII water use; therefore, calculations for Target Method 2 were not performed.
- (b) City does not currently have sufficient data to calculate annual CII water use; therefore, calculations for Target Method 4 were not performed.

In order to be in full compliance with the UWMP, there are additional steps that are necessary to further delineate the conservation program and actions to be undertaken by the City. A future public comment period and request for Council action scheduled for the end of May 2011 will recommend a resolution to consider the adoption of the full 2010 UWMP.

II. REASONS FOR RECOMMENDATION:

Adoption of an Urban Water Management Plan is required every five years by the Urban Water Management Plan Act. Target Method Number 1, shown in Table 1, represents the best plan that to meet the UWMP objectives.

III. EXISTING POLICY / RELATIONSHIP TO THE STRATEGIC PLAN:

Adoption of the UWMP is in accordance with the first goal of the Strategic Plan to provide for the City's primary infrastructure needs.

IV. POLICY ALTERNATIVES:

There are not alternatives to adopting a 2011 UWMP if the City wishes to maintain conformance with the directives of the Urban Water Management Plan Act.

V. FISCAL IMPACTS:

The impact of the adoption of the UWMP is expected to be a decrease in the per-capita water consumption. This lowering of water consumption will be factored into the water rates that will be recommended for adoption by the City Council as part of the Water Master Plan.

VI. INTERDEPARTMENTAL COORDINATION:

This has been a coordinated effort with the Engineering and Public Works Departments.

VII. PUBLIC PARTICIPATION:

This hearing will provide an opportunity for public participation in the UWMP.

VIII. COMMITTEE RECOMMENDATION:

No committees have been formed for this item


IX. ENVIRONMENTAL REVIEW:

Urban Water Management Plans are exempt from CEQA requirements.

X. STEPS FOLLOWING APPROVAL:

Following approval of the Methodology for Consumption Calculation for Determining Urban Water Use Target and the Associated Per-Capita Water Uses this material will be sent to the State for their review and approval.

Prepared by: 
Michael F. Brinton, Acting City Engineer

Reviewed by: 
Sheila Cumberland, Deputy City Manager

Submitted by: 
Art de Werk, Acting City Manager

Attachments: Resolution

RESOLUTION NO. 2011-41

RESOLUTION APPROVING A METHODOLOGY FOR CONSUMPTION CALCULATION FOR DETERMINING URBAN WATER USE TARGET AND THE ASSOCIATED PER-CAPITA WATER USES AS REQUIRED BY THE STATE WATER CODE, IN THE 2010 URBAN WATER MANAGEMENT PLAN

THE CITY COUNCIL
City of Ceres, California

WHEREAS, Urban Water Management Plans (UWMP) are required to be updated and submitted to the State Department of Water Resources (DWR) every five years under the Urban Water Management Planning Act (UWMPA); and

WHEREAS, the City of Ceres, hired West Yost Associates to develop the 2010 Urban Water Management Plan (2010 UWMP); and

WHEREAS, one of the requirements of the UWMP is that the City must implement specific Demand Management Measures (DMMs) that will help achieve per-capita water use targets that reflect a 20% reduction in water use by the year 2020 mandated by the State's Water Conservation Act (Senate Bill X7-7); and

WHEREAS, in October 2010, the DWR released the final Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use document describing the methods for determining these targets and three of the four methods allowed for determining the 20% reduction water use target for the year 2020, as well as the Interim 2015 target; and

WHEREAS, West Yost developed a Technical Memorandum which established the base water usage for Ceres water system, compared water use targets for three of the four methodologies and recommends Ceres to adopt Methodology Target Number 1; and

WHEREAS, Ceres base per-capita water use has been calculated at 243 per-capita-per-day (gpcd) and Methodology Target Number 1 provides for the required amount of reduction in per-capita water use to meet the final 2020 (194 gpcd) and Interim 2015 (219 gpcd) per-capita water use targets; and

WHEREAS, on March 28, 2011, the Ceres City Council held a Public Hearing to consider approval of the Methodology Consumption Calculation for determining urban water use target and associated per-capita water uses, as required by the State Water Code in the 2010 Water Management Plan and adopt Target Method Number 1.

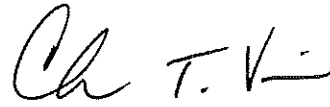
NOW, THEREFORE, IT IS RESOLVED that the City Council of the City of Ceres does hereby approve a methodology of consumption calculation for determining urban water use target and the associated per-capita water uses, as required by the State Water Code, in the 2010 Urban Water Management Plan.

PASSED AND ADOPTED by the Ceres City Council at a regular meeting thereof held on the 28th day of March, 2011, by the following vote:

AYES: Councilmembers Durossette, Lane, Ochoa, Mayor Vierra

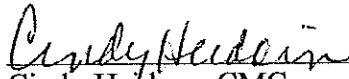
NOES: None

ABSENT: None

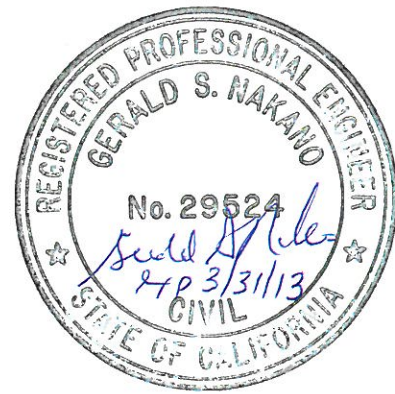
A handwritten signature in black ink, appearing to read "Ch T. Vierra", written over a horizontal line.

Chris Vierra, Mayor

ATTEST:

A handwritten signature in black ink, appearing to read "Cindy Heidorn", written over a horizontal line.

Cindy Heidorn, CMC
City Clerk



TECHNICAL MEMORANDUM

DATE: March 22, 2011

Project No.: 341-02-10-10

TO: Jeremy Damas, City of Ceres
Mike Brinton, City of Ceres

FROM: Gerry Nakano, R.C.E. #29524
Amy Kwong, R.C.E. #73213

SUBJECT: Compliance with the Water Conservation Act of 2009 (Senate Bill x7-7)

BACKGROUND

In November 2009, Senate Bill x7-7 (SBx7-7), The Water Conservation Act of 2009, was signed into law by Governor Arnold Schwarzenegger as part of a comprehensive water legislation package. The Water Conservation Act addresses both urban and agricultural water conservation. The legislation sets a goal of achieving a 20 percent statewide reduction in urban per capita water use by the year 2020 (*i.e.*, “20 by 2020”), and directs urban retail water suppliers to establish an “interim” per capita water use target to be met by 2015 and a “final” per capita water use target to be met by 2020.

The legislation also extended the deadline for the submittal of 2010 Urban Water Management Plans (UWMPs) by urban retail water suppliers from December 31, 2010 to July 1, 2011 to allow for additional time to comply with the SBx7-7 requirements and to incorporate reporting requirements into the 2010 UWMPs. Similar legislation (SB 1478 passed on September 24, 2010) was also passed to extend the 2010 UWMP submittal deadline for urban wholesale water suppliers to permit coordination between urban wholesale water suppliers and urban retail water suppliers.

The Water Conservation Act of 2009 was incorporated into Division 6 of the California Water Code, commencing with Section 10608 of Part 2.55. The methodologies, water use targets, and reporting required by the Water Conservation Act of 2009 apply to urban retail water suppliers that “*directly provide potable municipal water to more than 3,000 end users or that supply more than 3,000 acre-feet of potable water annually at retail for municipal purposes.*”

The City of Ceres (City) currently serves approximately 10,940 connections¹ (as of May 2010) and provided approximately 8,284 acre-feet of potable water to customers in 2010². Therefore, the City is required to comply with the requirements of SBx7-7.

¹ Source: Email sent by City staff on May 4, 2010.

² Source: File “Gallons Pumped.xls” provided by City staff on February 14, 2011.

INTRODUCTION

This technical memorandum (TM) presents the City of Ceres' (City's) proposed compliance with SBx7-7 and includes the following information:

- City of Ceres water service area
- Assumptions for gross water use and service area population
- Calculation of base daily per capita water use
- Calculation of interim and final targets using the four target methods established by SBx7-7 and DWR
- Recommended interim and final per capita water use targets for the City
- Allowable adjustments to compliance daily per capita water use
- Provisions for future revision of base daily per capita water use and/or target method used
- Public hearing requirements
- Reporting requirements in the City's 2010 UWMP and subsequent UWMPs
- Consequences of non-compliance with SBx7-7
- References

Calculations of Base Daily Per Capita Water Use, and Interim and Final Per Capita Water Use Targets have been made based on the requirements specified in the SBx7-7 legislation and the California Department of Water Resources (DWR) "Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use" dated October 1, 2010 (referred to as the "DWR Methodologies" in this TM).

WATER SERVICE AREA

The City of Ceres is located in Stanislaus County approximately 5 miles south of the City of Modesto, and south of the Tuolumne River. The City's existing water service area is approximately 4,900 acres or about 8 square miles. While the existing water service area is generally contiguous with the City limit, the northwest portion of the City receives water service from the City of Modesto, as shown on Figure 1. The City also provides water service for a few customers who are outside of the current City limit, but are within the Primary Sphere of Influence (SOI). Figure 1 also illustrates the locations of the existing pipelines serving the City's water service area.

O:\Clients\341 City of Ceres\02-10-10 Ceres Urban Water Mngt Plan\GIS\Figures\SB 7\Fig1_ServiceArea.mxd 1/20/2011

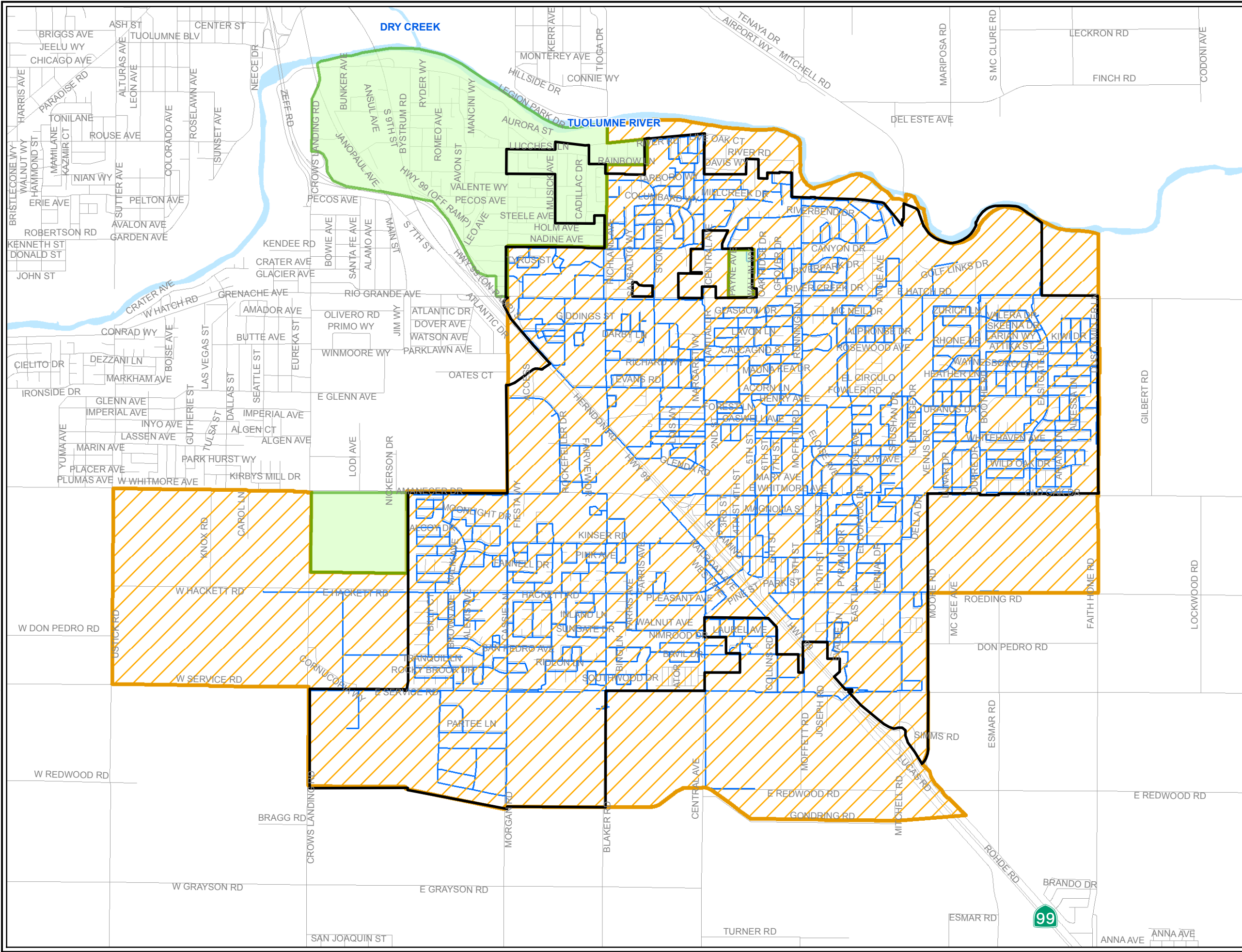
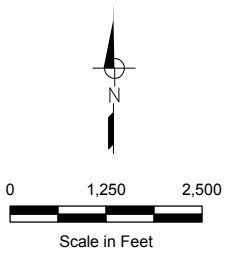


FIGURE 1

City of Ceres
SBx7-7 TM

EXISTING WATER
SERVICE AREA



- Notes
1. SOI and Study Area boundary files provided by ECO:LOGIC on 05/04/10. Boundaries have been revised to exclude area served by City of Modesto.
 2. Existing City Limits file (Ctylmt01.dwg) provided by the City on 10/01/09.

- LEGEND
- City Limit
 - Primary SOI
 - Area Served by City of Modesto
 - Water Feature
 - Existing Water System Pipeline
 - Street



GROSS WATER USE

Gross water use is the annual water supplied to the distribution system adjusted for recycled, wholesale, and agricultural deliveries and is defined in the Water Code as follows:

10608.12 (g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

- (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.*
- (2) The net volume of water that the urban retail water supplier places into long-term storage.*
- (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.*
- (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.*

The City's gross water use includes groundwater pumped from 15 operational wells located throughout the City's water service area.

DWR Methodology 1 (Gross Water Use) suggests that water volumes should be adjusted for meter errors and that gross water use calculations should be adjusted for changes in distribution system storage, indirect recycled water use and process water use. However, the City's gross water use has not been adjusted for meter errors as the City's meters are considered to be appropriately calibrated and any meter errors are considered to be negligible. The City has also not adjusted its gross water use for changes in distribution system storage as the volumes of water stored in the City's water storage reservoirs, although they vary from hour to hour based on diurnal demand patterns, are kept at consistent levels throughout the year. Also, no deductions have been taken for indirect recycled water use, water delivered for agricultural use or process water use as these deductions do not apply to the City. The City's gross water use, presented in the format recommended by the DWR Methodologies, is summarized in Table 1.

Table 1. Urban Retail Water Supplier Gross Water Use Calculation (DWR Methodologies Table 1)											
Utility Name: City of Ceres 12-month period: 1-Jan to 31-Dec Volume Units: Million Gallons											
Item	Calculation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	Volume from Own Sources (raw data)	2,914	2,939	3,080	3,280	3,176	3,305	3,304	3,299	3,527	3,458
	Meter error adjustment (+/-)	0	0	0	0	0	0	0	0	0	0
	Subtotal: Corrected Volume from Own Sources	2,914	2,939	3,080	3,280	3,176	3,305	3,304	3,299	3,527	3,458
2	Volume from Imported Sources (raw data)	0	0	0	0	0	0	0	0	0	0
	Meter error adjustment (+/-)	0	0	0	0	0	0	0	0	0	0
	Subtotal: Corrected Volume from Imported Sources	-	-	-	-	-	-	-	-	-	-
3	Total Volume Into Distribution System = Item 1 + Item 2	2,914	2,939	3,080	3,280	3,176	3,305	3,304	3,299	3,527	3,458
4	Volume Exported to Other Utilities (raw data)	0	0	0	0	0	0	0	0	0	0
	Meter error adjustment (+/-)	0	0	0	0	0	0	0	0	0	0
	Subtotal: Corrected Volume Exported to Other Utilities	-	-	-	-	-	-	-	-	-	-
5	Change in Distribution System Storage (+/-)	0	0	0	0	0	0	0	0	0	0
6	Gross Water Use Before Indirect Recycled Water Use Deductions = Item 3 - Item 4 - Item 5	2,914	2,939	3,080	3,280	3,176	3,305	3,304	3,299	3,527	3,458
7	Indirect Recycled Water Use Deduction	0	0	0	0	0	0	0	0	0	0
8	Gross Water Use After Indirect Recycled Water Use Deductions = Item 6 - Item 7	2,914	2,939	3,080	3,280	3,176	3,305	3,304	3,299	3,527	3,458
9	Water Delivered for Agricultural Use (optional deduction)	0	0	0	0	0	0	0	0	0	0
10	Process Water Use (optional deduction)	0	0	0	0	0	0	0	0	0	0
11	Gross Water Use After Optional Deductions = Item 8 - Item 9 - Item 10	2,914	2,939	3,080	3,280	3,176	3,305	3,304	3,299	3,527	3,458

The City's historical gross water use from 1990 to 2010 in acre-feet per year (af/yr) is summarized in Table 2.

Table 2. City of Ceres Historical Gross Water Use	
Year	Gross Water Use, af/yr
1990	6,185
1991	6,389
1992	6,814
1993	6,363
1994	7,039
1995	7,419
1996	7,972
1997	8,800
1998	7,854
1999	8,942
2000	9,020
2001	9,451
2002	10,067
2003	9,748
2004	10,141
2005	10,140
2006	10,125
2007	10,823
2008	10,613
2009 ^(a)	9,193
2010 ^(a)	8,284
^(a) 2009 and 2010 gross water use in the City was low due to a number of factors, including drought conditions and economic conditions.	

SERVICE AREA POPULATION

Service area population is used to determine per capita water use and is defined in the Water Code as follows:

- (1) 10608.20 (f) When calculating per capita values for the purpose of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.*

Consistent with DWR Methodology 2 (Service Area Population), the City's service area population has been estimated using California Department of Finance (DOF) and the United States Census Bureau to the extent that it is available. However, the existing City limit includes a small area in the northwestern part of the City that is served by the City of Modesto. To determine the City's actual water service area population, the DOF population estimates were adjusted based on dwelling unit counts and average person per household densities reported by DOF to exclude the population within the City limit that is served by the City of Modesto. It is estimated

that approximately 1,200 people are served by the City of Modesto. The City's historical service area population from 1990 to 2010 is summarized in Table 3.

Table 3. City of Ceres Historical Service Area Population			
Year	DOF Population^(a)	Service Area Population^(b)	Persons/Household^(a)
1990	26,413	25,298	3.039
1991	27,616	26,507	3.022
1992	28,678	27,547	3.081
1993	29,795	28,650	3.121
1994	30,382	29,234	3.128
1995	31,371	30,203	3.183
1996	32,055	30,882	3.195
1997	32,768	31,587	3.219
1998	33,398	32,208	3.244
1999	33,801	32,601	3.270
2000	34,609	33,395	3.307
2001	35,111	33,885	3.341
2002	35,805	34,570	3.364
2003	36,519	35,277	3.384
2004	37,473	36,231	3.385
2005	38,712	37,479	3.360
2006	40,719	39,502	3.317
2007	41,678	40,470	3.292
2008	42,491	41,282	3.295
2009	42,888	41,678	3.298
2010	43,219	42,001	3.320

(a) 1990 to 1999 population and persons/household estimates obtained from *State of California, Department of Finance, E-8 Historical Population and Housing Estimates for Cities, Counties and the State, 1990-2000. Sacramento, California, August 2007*. 2000 to 2010 population and persons/household estimates obtained from *State of California, Department of Finance, E-5, Population and Housing Estimates for Cities, Counties and the State, 2001-2010, with 2000 Benchmark. Sacramento, California, May 2010*. Estimates are as of January 1st in each listed year.

(b) Service area population was estimated by excluding homes in North Ceres within the City limit that are served by the City of Modesto.

BASE DAILY PER CAPITA WATER USE

The Base Daily Per Capita Water Use is the historical gross water use divided by the service area population and is defined in the Water Code as follows:

10608.12 (b) "Base daily per capita water use" means any of the following:

- (1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*

- (2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*
- (3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.*

Unless the urban retail water supplier's 5-year Base Daily Per Capita Water Use per Water Code Section 10608.12 (b) (3) is 100 gallons per capita per day (gpcd) or less, Base Daily Per Capita Water Use must be calculated for both baseline periods. Calculation methods are described in DWR Methodology 3 (Base Daily Per Capita Water Use).

5-Year Base Daily Per Capita Water Use Per Water Code Section 10608.22

For purposes of Water Code Section 10608.22, the Base Daily Per Capita Water Use must be calculated using a continuous 5-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

Table 4 shows the calculation of the City's Base Daily Per Capita Water Use for the 5-year period ending December 31, 2007. As shown, the City's 5-Year Base Daily Per Capita Water Use is 241 gpcd.

10- or 15-Year Base Daily Per Capita Water Use Per Water Code Section 10608.20

Per Water Code Section 10608.20, the City's Base Daily Per Capita Water Use is calculated using one of the following base periods:

- If recycled water made up less than 10 percent of 2008 retail water delivery, use a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.
- If recycled water made up 10 percent or more of 2008 retail water delivery, use a continuous 10- to 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

The City does not currently use recycled water within its service area. As such, the City must use a continuous 10-year period to determine their Base Daily Per Capita Water Use. Table 5 shows the calculation of the City's Base Daily Per Capita Water Use for the 10-year period ending December 31, 2008. As shown, the City's 10-Year Base Daily Per Capita Water Use is 243 gpcd.

Table 4. Base Daily Per Capita Water Use Calculation for Section 10608.22 (DWR Methodologies Table 3)			
Utility Name:		City of Ceres	
12-month Period:		January 1 to December 31	
(1)	(2)	(3)	(4)
Base Years	Service Area Population	Gross Water Use, gpd	Daily Per Capita Water Use (3) ÷ (2), gpcd
2003	35,277	8,702,591	247
2004	36,231	9,053,721	250
2005	37,479	9,052,649	242
2006	39,502	9,038,588	229
2007	40,470	9,662,422	239
Total of Column (4):			1,207
Divide Total by 5:			241

Table 5. Base Daily Per Capita Water Use Calculation for Section 10608.20 (DWR Methodologies Table 4)			
Utility Name:		City of Ceres	
12-month Period:		January 1 to December 31	
(1)	(2)	(3)	(4)
Base Years	Service Area Population	Gross Water Use, gpd	Daily Per Capita Water Use (3) ÷ (2), gpcd
1999	32,601	7,983,211	245
2000	33,395	8,052,304	241
2001	33,885	8,437,339	249
2002	34,570	8,986,851	260
2003	35,277	8,702,591	247
2004	36,231	9,053,721	250
2005	37,479	9,052,649	242
2006	39,502	9,038,588	229
2007	40,470	9,662,422	239
2008	41,282	9,474,264	230
Total of Column (4):			2,432
Divide Total by 10:			243

DETERMINATION OF INTERIM (2015) AND FINAL (2020) TARGETS

Overview of DWR Methods

The City must set an interim (2015) water use target and a final (2020) water use target using one of four methods defined by SBx7-7 and DWR. Three of these methods are defined in Water Code Section 10608.20 (a) (1), and the fourth provisional method was developed in late January 2011 and subsequently finalized in February 2011. The 2020 water use target will be calculated using one of the following four methods:

- Method 1: 80 percent of the City's base daily per capita water use
- Method 2: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use; landscaped area water use; and commercial, industrial, and institutional uses
- Method 3: 95 percent of the applicable State hydrologic region target as stated in the State's April 30, 2009, draft 20x2020 Water Conservation Plan
- Method 4: A provisional approach that considers the water conservation potential from (1) indoor residential savings, (2) metering savings, (3) commercial, industrial and institutional savings, and (4) landscape and water loss savings

As described below, the target may need to be adjusted further to achieve a minimum reduction in water use regardless of the target method. Detailed evaluations of each method are provided in the following sections.

Target Method 1

SBx7-7 legislation, Water Code Section 10608.20 (b) (1) defines Method 1 as:

Eighty percent of the urban retail water supplier's baseline per capita daily water use.

Urban water use targets calculated using Method 1 rely on the historical gross water use and service area population to determine a base daily per capita water use. The definitions and methodologies used for Method 1, as defined in the legislation and in the DWR Methodologies, are detailed below.

Target Method 1 is based on a 20 percent reduction from the City's 10-year Base Daily Per Capita Water Use. The Interim (2015) target is based on 90 percent of the Base Daily Per Capita Water Use and the Final (2020) target is based on 80 percent of the Base Daily Per Capita Water Use.

As calculated above, the City's Base Daily Per Capita Water Use for the 10-year period ending December 31, 2008 is 243 gpcd (see Table 5). Therefore, the City's interim (2015) target per Target Method 1 is 219 gpcd (90 percent of 243 gpcd), and the City's final (2020) target per Target Method 1 is 194 gpcd (80 percent of 243 gpcd).

The City's targets using Target Method 1 are summarized as follows:

- Interim (2015) Target = 219 gpcd
- Final (2020) Target = 194 gpcd

Target Method 2

SBx7-7 legislation, Water Code Section 10608.20 (b) (2) defines Method 2 as:

The per capita daily water use that is estimated using the sum of the following performance standards:

- (A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.*
- (B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.*
- (C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, institutional water use by 2020.*

Residential Indoor Water Use

Per DWR Methodology 5 (Indoor Residential Use), the residential indoor urban water use target is set at 55 gpcd. The legislation requires that DWR assess whether this is a reasonable assumption in a report due in 2016. Depending on the findings, the residential indoor urban water use target may be adjusted after 2016.

Landscape Irrigation Water Use

The landscaped area urban water use target relies on the state-adopted Model Water Efficient Landscape Ordinance for definitions and calculations. The 2020 landscaped area for the service area must be estimated and then the Maximum Applied Water Allowance (MAWA) calculated from the Model Water Efficient Landscape Ordinance. Two different MAWA equations are specified in the DWR Methodologies. For landscapes installed prior to January 1, 2010, the MAWA equation as defined in the 1992 version of the Model Water Efficient Landscape Ordinance is to be used. For landscapes installed after January 1, 2010, the MAWA equation as defined in the 2009 version of the Model Water Efficient Landscape Ordinance is to be used.

The equation used to calculate the MAWA on landscaped areas constructed prior to January 1, 2010 is as follows:

$$\text{Maximum Applied Water Allowance (MAWA)} = (ET_o) (0.62) (0.8 \times LA)$$

Where,

MAWA is in gallons per year

ET_o = Reference evapotranspiration (inches per year), which is “a standard measurement of environmental parameters which affect the water use of plants” (Reference: page 38.10 of the 1992 Model Water Efficient Landscape Ordinance)

0.62 = Conservation Factor (from inches/year to gallons/sf/year)

0.8 = ET Adjustment Factor (ETAF). When applied to reference evapotranspiration, the ETAF “adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape”

LA = Landscaped Area (sf), which includes “all the planting areas, turf areas, and water features in a landscape design plan subject to the MAWA calculation” (for SBx7-7 compliance, only irrigated landscape area should be included)

A second equation is used to determine the MAWA on landscaped areas constructed after January 1, 2010. It is as follows:

$$\text{Maximum Applied Water Allowance (MAWA)} = (ET_o) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

Where definitions for factors not provided above are,

ET_o = Reference evapotranspiration (inches per year), which is “a standard measurement of environmental parameters which affect the water use of plants” (Reference: Appendix A of the 2010 Model Water Efficient Landscape Ordinance)

0.7 = ET Adjustment Factor (ETAF). When applied to reference evapotranspiration, the ETAF “adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape”

0.3 = Additional Water Allowance for Special Landscape Area (SLA), resulting in an effective ETAF for SLA of 1.0

SLA = Special Landscaped Area (sf), which is defined as “an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface”

Per the DWR Methodology 6 (Landscaped Area Water Use), a rigorous application of this method requires a data-intensive analysis using GIS, coupled with site visits, to estimate to 2020 landscape areas. Such an analysis has not been performed for this evaluation due to insufficient data.

Commercial, Industrial and Institutional Water Use

Per DWR Methodology 7 (Baseline Commercial, Industrial and Institutional Water Use), the commercial, industrial and institutional (CII) urban water use target is based on a 10 percent reduction in water use from the baseline CII water use by 2020. The calculation of the baseline CII water use is performed in the same way that the 10-year Base Daily Per Capita Water Use is

calculated. As discussed in DWR Methodology 7, a retail water supplier must have annual CII water use data for the entire baseline period. If the data does not exist, the retail water supplier should use another water use target method.

The City does not currently have sufficient data to calculate annual CII water use; therefore, calculations for Target Method 2 were not performed.

Target Method 3

SBx7-7 legislation, Water Code Section 10608.20 (b) (3) defines Method 3 as:

Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

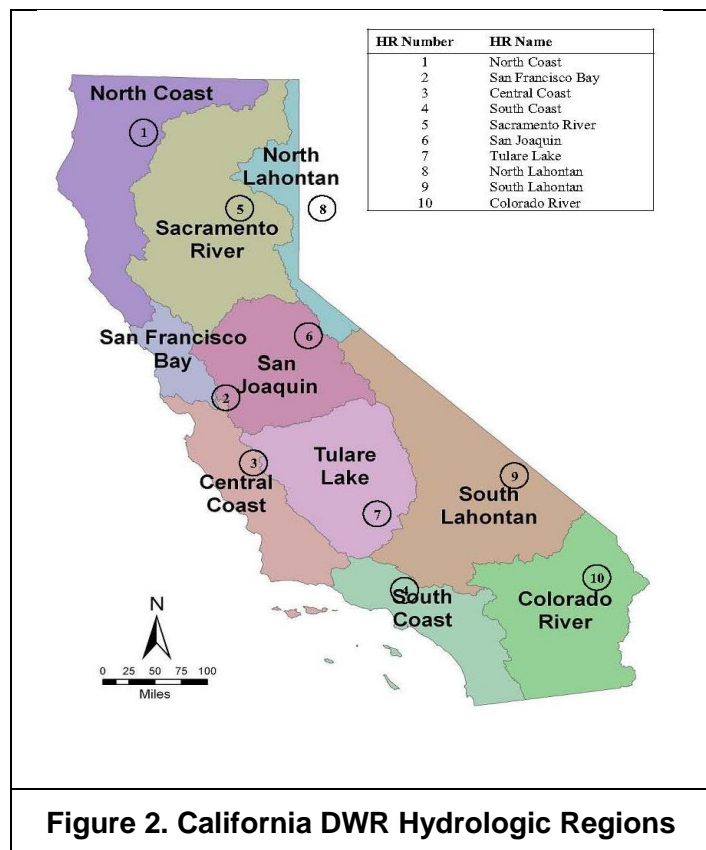
Method 3 is based solely on the hydrologic region targets that have been established in the draft 20x2020 Water Conservation Plan dated April 30, 2009³.

DWR has defined ten hydrologic regions for water resources planning purposes (see Figure 2). The City of Ceres is located in the San Joaquin River Hydrologic Region (Region No. 6).

The baseline, interim and final targets established in the 20x2020 Water Conservation Plan are summarized in Table 6.

Table 6 also shows 95 percent of the final (2020) hydrologic region targets, which are the required 2020 targets for SBx7-7 Target Method 3. For the City, the 2020 target is 165 gpcd (95 percent of the Region No. 6 target).

The Method 3 interim target is calculated based on the midpoint between the City's 10-year Base Daily Per Capita Water Use (243 gpcd) and the Method 3 2020 Target (165 gpcd) and equals 204 gpcd.



The City's targets using Target Method 3 are summarized as follows:

- Interim (2015) Target = 204 gpcd
- Final (2020) Target = 165 gpcd

³ A final version of the 20x2020 Water Conservation Plan was published in February 2010.

Table 6. California Hydrologic Region Per Capita Water Use Targets										
DWR Hydrologic Region Number and Name	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10
	North Coast	San Francisco Bay	Central Coast	South Coast	Sacramento River	San Joaquin River	Tulare Lake	North Lahontan	South Lahontan	Colorado River
20x2020 Water Conservation Plan Targets										
Baseline (1995-2005), gpcd	165	157	154	180	253	248	285	243	237	346
Interim (2015) Targets, gpcd	151	144	139	165	215	211	237	208	204	278
Final (2020) Targets, gpcd	137	131	123	149	176	174	188	173	170	211
SBx7-7 Targets										
95% of Final (2020) Targets, gpcd	130	124	117	142	167	165	179	164	162	200
Note: The City of Ceres is located in Region 6 (San Joaquin River). The Interim (2015) SBx7-7 Target is the midpoint of the agency's 10-year Base Daily Per Capita Water Use and the 95% of Final (2020) SBx7-7 Target shown above.										

Target Method 4

On February 16, 2011, DWR released the Provisional Method 4. It should be noted that Method 4 is “provisional”, and it is expected that DWR will continue to make improvements to the method, prior to finalizing the methodology before the end of 2014 as stated in Water Code Section 10608.20 (d):

The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

Possible improvements to Method 4 may include changes to the landscape and water loss savings calculations and adjustments to baselines based on data provided in 2010 UWMPs.

Method 4 develops water use targets, which consider the water conservation potential from the following four sources:

1. Indoor Residential Savings
2. Metering Savings
3. CII Savings
4. Landscape and Water Loss Savings

The sum of the calculated water use savings from the four sources listed above will be subtracted from the 10-year Base Daily Per Capita Water Use to determine the Method 4 final (2020) water use target. The Method 4 interim target is calculated based on the midpoint between the 10-year Base Daily Per Capita Water Use and the Method 4 2020 Target. A summary of the water savings assumptions and calculations for each of these four sources is provided below.

Indoor Residential Savings

Indoor residential water use is assumed to be 70 gpcd for all water suppliers. The indoor residential savings can be calculated in two ways, either by using a default savings of 15 gpcd, or by using the Best Management Practice (BMP) Calculator. The BMP Calculator sums the potential savings from the following four elements:

- Single-family housing toilets,
- Multi-family housing toilets,
- Residential washers, and
- Showerheads.

Based on the four categories of fixtures listed above, the BMP Calculator estimates how much indoor residential water use would be saved if the saturation for efficient fixtures was increased to reach saturation goals for 2020. Saturation goals for each of the elements listed above is defined as:

- Single-family housing toilets = 85 percent 1.28 gallons per flush toilets
- Multi-family housing toilets = 85 percent 1.28 gallons per flush toilets
- Residential washers = 85 percent Water Factor of 6 (Water Factor = gallons of water per cubic foot of laundry), 15 percent average 2000 Water Factor
- Showerheads = 95 percent low flow showerheads

Existing saturation estimates are based on the midpoint year of the supplier's baseline, which for the City would be end of 2003 or beginning of 2004. Therefore, water suppliers with existing high percentages of efficient fixtures will have to install fewer efficient fixtures in the future, and subsequently, will have a smaller calculated indoor residential savings requirement (i.e., higher Method 4 per capita water use target).

Metering Savings

The metering savings calculation assumes (per BMP 1.3 of the California Urban Water Conservation Council Memorandum of Understanding) that water deliveries to unmetered accounts can be lowered by 20 percent once meters are installed.

CII Savings

The CII savings are equal to 10 percent of the baseline CII water use, which is identical to the calculation of the CII water use target in Target Method 2 as discussed above.

Landscape and Water Loss Savings

Estimated landscape water use and water loss is equal to the 10-year Base Daily Per Capita Water Use minus the following per capita water uses: residential indoor, unmetered, and CII. Landscape and water loss savings are defined to be 21.6 percent of the calculated estimated landscape water use and water loss. DWR calculated the value of 21.6 percent based on the percent reduction required for a random sample of 52 California water suppliers to reduce their collective total per capita water demand by 20 percent. DWR anticipates adjusting the required percent reduction in landscape and water loss savings to be included in the 2015 UWMP.

Target Method 4 Calculation

As discussed under Target Method 2, a retail water supplier must have annual CII water use data for the entire baseline period; else, the retail water supplier should use another water use target method. Since Target Method 4 incorporates CII savings, for which there is currently insufficient data for, calculations for Method 4 were not performed. However, based on our current understanding of Method 4 methodologies, West Yost believes that it is unlikely that Target Method 4 would provide a more favorable result for the City than Methods 1 or 3. Therefore, West Yost recommends that the City proceed with the adoption of a SBx7-7 target and

preparation of the 2010 UWMP based on the results of Methods 1 and 3. If warranted, the City can re-evaluate the SBx7-7 target compliance methods when preparing the 2015 UWMP.

Minimum Water Use Reduction Requirement

Water Code Section 10608.22 specifies the minimum water use reduction requirement as follows:

Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

The calculation of the minimum water use reduction requirement includes the following three steps:

1. Calculate Base Daily Per Capita Water Use using a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.
2. Multiply the result from Step 1 by 0.95. The 2020 per capita water use target cannot exceed this value (unless the water supplier's five year baseline per capita water use is 100 gpcd or less). If the 2020 target is greater than this value, reduce the target to this value.
3. Set the 2015 target to the mid-point between the 10- or 15-year baseline per capita water use and the 2020 target determined in Step 2.

As described above, the City's Base Daily Per Capita Water Use for the five-year period ending December 31, 2007 was 241 gpcd (see Table 4). Therefore, per Water Code Section 10608.22, the 2020 per capita water use target cannot exceed 95 percent of 241 gpcd, or 229 gpcd. The Interim (2015) target is then set at the midpoint between the City's 10-year Base Daily Per Capita Water Use (243 gpcd) (see Table 5) and 229 gpcd, which equals 236 gpcd.

The City's targets using the required minimum reduction are summarized as follows:

- Interim (2015) Target = 236 gpcd
- Final (2020) Target = 229 gpcd

Recommended Target Method and Resulting Targets for the City of Ceres

Table 7 summarizes the methods for calculating base daily water use and the interim and final target daily water use in gallons per capita per day (gpcd).

Table 7. Summary of SBx7-7 Methodologies for Determining Urban Water Use Targets

Target Method Number	Target Method Description	Base Daily Per Capita Water Use	Interim (2015) Target	Final (2020) Target
1	<ul style="list-style-type: none"> Uses historical gross water use and service area population to determine a base daily per capita water use. The Urban Water Use Target is 80 percent of this value. Based on 10-year running average per capita water use ending between 2004 and 2010. Gross water use is that total water supplied to the system less recycled, wholesale or agricultural deliveries 	243 gpcd	219 gpcd	194 gpcd
2	<ul style="list-style-type: none"> Uses performance standards for indoor water use, landscape irrigation use and commercial, institutional and industrial (CII) uses. Residential water use = 55 gpcd Uses Model Water Efficient Landscape Ordinance for definitions and calculations. Uses estimated landscaped area and applies a Maximum Applied Water Allowance, calculated from the ordinance ^(b). CII use based on historical CII per capita use less 10 percent 	243 gpcd ^(a)	-- gpcd ^(b)	-- gpcd ^(b)
3	<ul style="list-style-type: none"> Uses 95 percent of the applicable state hydrologic region target as defined in the State's draft 20x2020 Water Conservation Plan issued by DWR in April 2009 City of Ceres is located in State hydrologic region number 6 (San Joaquin River) 	243 gpcd ^(a)	204 gpcd	165 gpcd
4	<ul style="list-style-type: none"> A provisional approach that considers the water conservation potential from: <ul style="list-style-type: none"> Indoor residential savings Metering savings Commercial, industrial and institutional savings Landscape and water loss savings 	243 gpcd ^(a)	-- gpcd ^(c)	-- gpcd ^(c)
Minimum Requirement	<ul style="list-style-type: none"> Based on 95 percent of the 5-year running average per capita water use ending between 2007 and 2010. 	241 gpcd	236 gpcd	229 gpcd

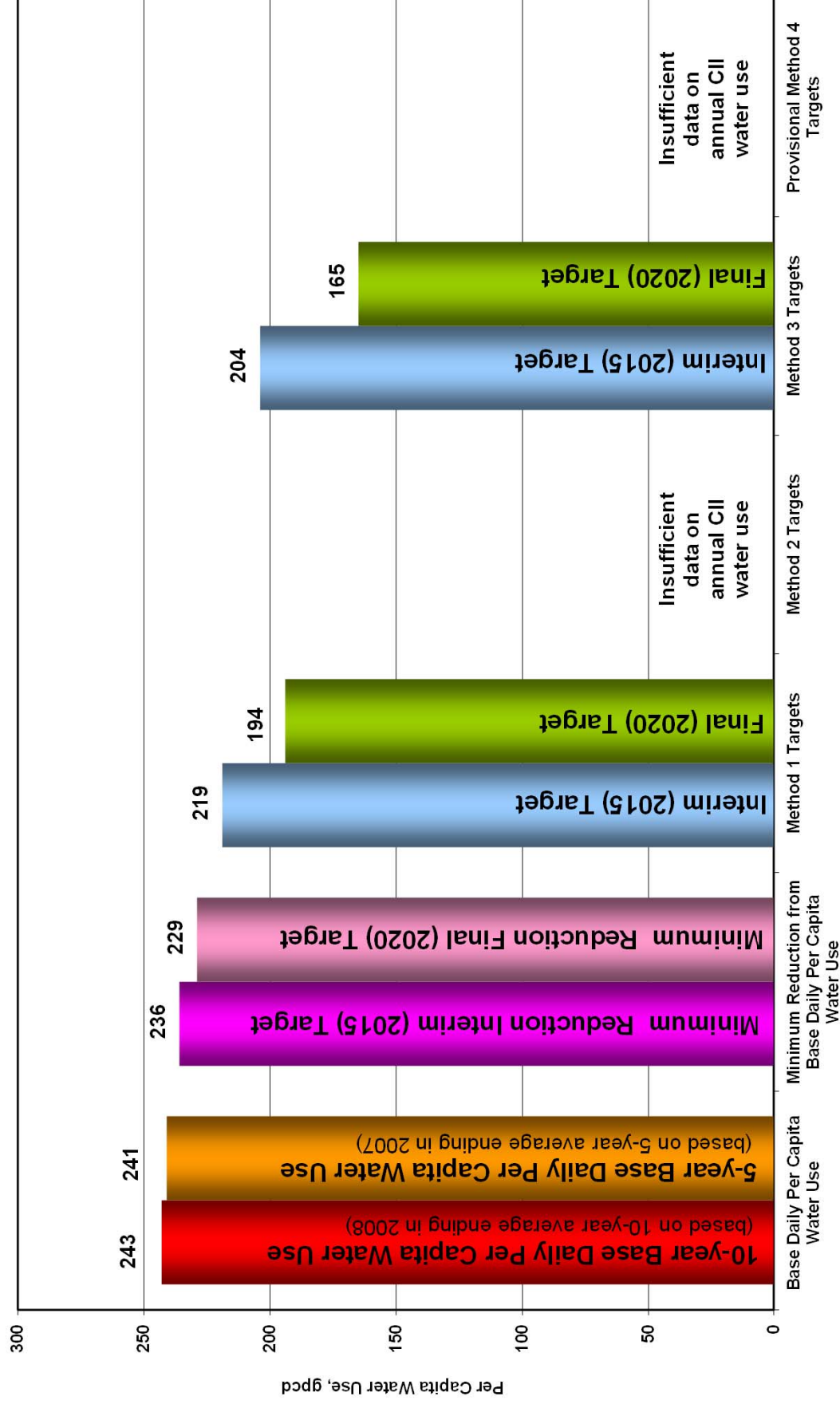
^(a) The baseline for this method is the same as Method 1 and is used to establish the interim target.

^(b) Rigorous application of this method requires a data-intensive analysis using GIS, coupled with site visits to estimate appropriate irrigation areas. Such an analysis has not been performed for this evaluation due to insufficient data. In addition, the City does not currently have sufficient data to calculate annual CII water use; therefore, calculations for Target Method 2 were not performed

^(c) The City does not currently have sufficient data to calculate annual CII water use; therefore, calculations for Target Method 4 were not performed.

Based on the results for the four target methods, Target Method 1 results in the highest allowable SBx7-7 gpcd, and therefore is the most favorable. These targets are graphically shown on Figure 3.

Figure 3. Summary of SBX7-7 Targets for the City of Ceres



Therefore, the City should adopt the following SBx7-7 per capita water use targets based on Target Method 1:

- Interim (2015) Target = 219 gpcd
- Final (2020) Target = 194 gpcd

The City's compliance with these targets in 2015 and 2020 shall be determined in accordance with DWR Methodology 4 (Compliance Daily Per Capita Water Use) based on gross water use and service area population in the compliance years (2015 and 2020).

For illustrative and comparative purposes, Figure 4 graphically presents the City's historical per capita water use, compared to the recommended interim and final SBx7-7 compliance targets. It should be cautioned that the per capita water use in 2009 and 2010 may not be representative of normal water use patterns, due to a combination of multiple years of drought (and aggressive water conservation activities) and the economic downturn.

ADJUSTMENTS TO COMPLIANCE DAILY PER CAPITA WATER USE

Water Code Section 10608.24 (d) provides for adjustments when determining the compliance daily per capita water use. It states that an urban retail water supplier may consider the following factors:

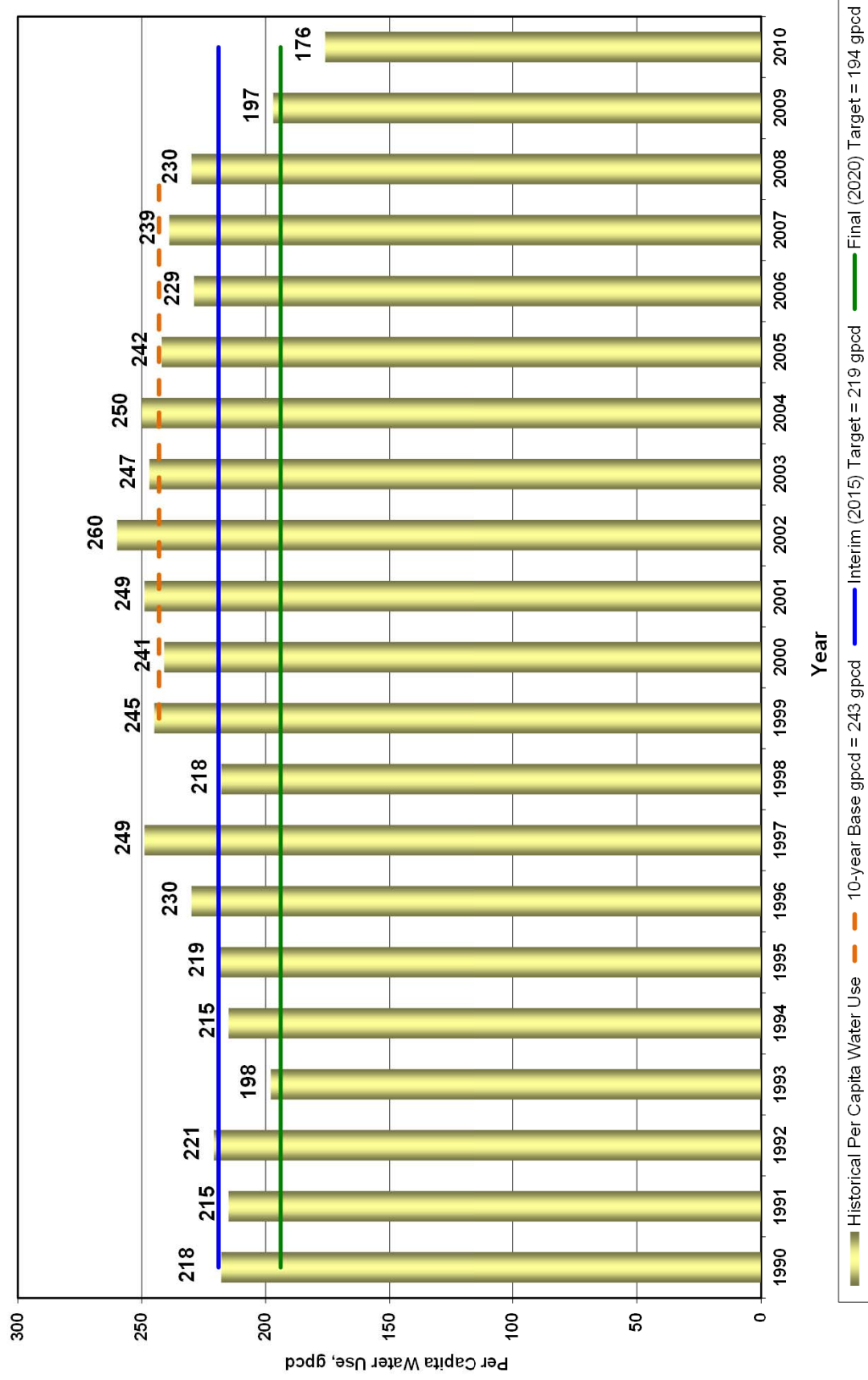
- Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.
- Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.
- Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

As described in DWR Methodology 8 (Criteria for Adjustments to Compliance Daily Per Capita Water Use), if the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described above, it shall provide the basis for, and data supporting, the adjustment.

FUTURE REVISION OF METHODS AND/OR TARGETS

The City may revise its calculated Base Daily Per Capita Water Use after submitting its 2010 UWMP if better information becomes available. The revisions may be included in the City's 2015 and subsequent plans or may be submitted in an amended 2010 UWMP, provided it follows the process required for amendments to UMWPs. It should be noted that if the revisions to the Base Daily Per Capita Water Use change the water use target, the water use target must be revised as well.

Figure 4. Historical Per Capita Water Use and SBx7-7 Method 1 Targets for the City of Ceres



In addition, the City may change the method it uses to set its water use target, and report the method change and target revision in an amended 2010 UWMP or in its 2015 UWMP. Target method changes are not permitted in the 2020 UWMP or amended 2015 UWMPs.

PUBLIC HEARING REQUIREMENTS

To comply with Water Code Section 10608.26, the City shall conduct at least one public hearing to discuss and adopt the water use target method and resulting water use targets for 2015 and 2020. The following issues must be addressed during the public hearing:

- Allow community input regarding the urban retail water supplier's implementation plan for complying with SBx7-7;
- Consider the economic impacts of the urban retail water supplier's implementation plan for complying with SBx7-7; and
- Adopt a method, pursuant to subdivision (b) of Water Code Section 10608.20, for determining its urban water use target.

The Water Code has no other specific requirements for this public hearing. The City may choose to hold a specific public hearing for this purpose only, or may choose to combine this public hearing with the public hearing required for the preparation of the City's 2010 UWMP (per Water Code Section 10642).

REPORTING REQUIREMENTS

The City must report on their SBx7-7 compliance in their upcoming UWMPs. Table 8 provides an outline of the specific reporting requirements for the City's 2010, 2015, and 2020 UWMPs.

Table 8. SBx7-7 Reporting Requirements			
Reporting Element	2010 UWMP	2015 UWMP	2020 UWMP
Baseline Gross Water Use and Service Area Population	✓	✓	✓
2020 Urban Water Use Target	✓	✓	✓
Interim 2015 Urban Water Use Target	✓	✓	
Compliance Year Gross Water Use		✓	✓
Adjustments to Gross Water Use in the Compliance Year		✓	✓
Water Suppliers who choose Target Method 2 must provide Landscaped Area Water Use and Baseline CII Water Use data		✓	✓
Water suppliers who choose Target Method 4 must provide the components of calculation as required by Target Method 4		✓	✓

The City will be required to incorporate these reporting requirements into their 2010, 2015 and 2020 UWMPs.

CONSEQUENCES OF NON-COMPLIANCE WITH SBX7-7

The City must comply with the SBx7-7 requirements by establishing 2015 interim and 2020 final water use targets, demonstrating that its water use is in compliance with its targets, and reporting water use baselines, targets, compliance year water use, and supporting data in its 2010, 2015 and 2020 UWMPs.

Water Code Section 10608.56 (a) states that a water supplier not in compliance will not be eligible for water grants or loans that may be administered by DWR or other state agencies:

On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

Two exceptions to this are allowed.

- Water Code Section 10608.56 (c) states that a water supplier shall be eligible for a water loan or grant if it “has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions.”
- Water Code Section 10608.56 (e) states that a water supplier can also be eligible for a water loan or grant if it “has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community.”

REFERENCES

- Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, prepared by California Department of Water Resources, October 1, 2010.
- Senate Bill 1478, approved by Governor Arnold Schwarzenegger on September 24, 2010.
- Water Conservation Act of 2009 (Senate Bill x7-7), approved by Governor Arnold Schwarzenegger on November 10, 2009.
- Provisional Method 4 for Determining Water Use Targets, prepared by California Department of Water Resources, February 16, 2011.